

WHAT IS CLAIMED IS:

1. A process for the separation of conjugated olefins and monoolefins, comprising:

contacting a fluid comprising monoolefins and conjugated olefins with a Diels-Alder dienophile to provide a fluid comprising a Diels-Alder adduct and monoolefins; and

recovering a resulting monoolefin-containing fluid comprising less than about 50 parts per million (ppm) conjugated olefins.

2. A process according to claim 1 wherein said Diels-Alder dieneophile is selected from the group consisting of ethylenes, acetylenes, cyclics, and combinations thereof.
3. A process according to claim 2 wherein said Diels-Alder dieneophile is selected from the group consisting of maleic anhydride, derivatives of maleic anhydride, benzoquinone, derivatives of benzoquinone, dialkyl fumarates, dialkyl maleates, dialkylacetylenedicarboxylates, and combinations thereof.
4. A process according to claim 3 wherein said Diels-Alder dieneophile is maleic anhydride.
5. A process according to claim 1 wherein said conjugated olefins comprise at least about 4 carbon atoms per molecule and no more than about 10 carbon atoms per molecule.
6. A process according to claim 5 wherein said conjugated olefins comprise at least about 4 carbon atoms per molecule and no more than about 8 carbon atoms per molecule.

7. A process according to claim 1 wherein said conjugated olefins are selected from the group consisting of 1,3-butadiene, 1,3-pentadiene, 1,3-hexadiene, 2,4-hexadiene, 1,3,5-hexatriene, 1,3-heptadiene, 2,4-heptadiene, 1,3,5-heptatriene, 1,3-octadiene, 2,4-octadiene, 3,5-octadiene, 1,3,5-octatriene, 2,4,6-octatriene, 1,3,5,7-octatetiene, 1,3-nonadiene, 2,4-nonadiene, 3,5-nonadiene, 1,3,5-nonatriene, 2,4,6-nonatriene, 1,3,5,7-nonatetraene, 1,3-decadiene, 2,4-decadiene, 3,5-decadiene, 4,6-decadiene, 1,3,5-decatriene, 2,4,6-decatriene, 3,5,7-decatriene, 1,3,5,7-decatetraene, 2,4,6,8-decatetraene, 1,3,5,7,9-decapentaene, and combinations thereof.
8. A process according to claim 7 wherein said conjugated olefins are selected from the group consisting of 1,3-butadiene, 1,3-pentadiene, 1,3-hexadiene, 1,3-heptadiene, 1,3-octadiene, 1,3-nonadiene and 1,3-decadiene.
9. A process according to claim 1 wherein said monoolefins comprise normal alpha olefins.
10. A process according to claim 1 wherein said monoolefins are selected from the group consisting of 1-butene, 1-pentene, 1-hexene, 1-heptene, 1-octene, 1-nonene, 1-decene, and combinations thereof.
11. A process according to claim 10 wherein said monoolefins are selected from the group consisting of 1-butene, 1-pentene, 1-hexene, and combinations thereof.
12. A process according to claim 1 wherein said resulting monoolefin-containing fluid comprises less than about 25 parts per million conjugated olefins.
13. A process according to claim 1 wherein said resulting monoolefin-containing fluid comprises less than about 10 parts per million conjugated olefins.

14. A process according to claim 1 wherein said recovering comprises subjecting said fluid comprising a Diels-Alder adduct and monoolefins to a separating means.
15. A process according to claim 14 wherein said separating means is selected from the group consisting of distillation, adsorption, membrane separation, and combinations thereof.
16. A process according to claim 1 wherein said recovering is conducted using reactive distillation.
17. A process according to claim 1 wherein said monoolefins are 1-butene and said conjugated olefins are 1,3-butadiene.
18. A process according to claim 17 wherein said dienophile is maleic anhydride.